

DEPARTMENT OF THE ARMY  
Corps of Engineers, Portland District  
P. O. Box 2946  
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CENWP-EC  
Regulation  
No. 1110-2-6

30 November 1999

Engineering and Design  
BCOE REVIEW PROCEDURE

**History.** This issue is a revision of this publication.

**Summary.** This regulation on the procedures for accomplishing the Biddability, Constructibility, Operability, and Environmental (BCOE) review has been revised to update the procedures on such review.

1. PURPOSE. To establish a review procedure to insure that all aspects of the BCOE are integrated into the procurement documents.
2. APPLICABILITY. This regulation applies to all construction projects and selected complex supply and service projects, in Portland District (NWP).
3. REFERENCES. Required publications are listed below.
  - a. ER 415-1-11 (Biddability, Constructibility, Operability, and Environmental). Cited in paragraph 5f.
  - b. ER 1110-2-112 (Required Visits to the Construction Sites by Design Personnel). Cited in paragraph 7a(2).
  - c. ER 1110-2-1150 (Engineering and Design for Civil Works Projects). Cited in paragraph 7a(1).
  - d. ER 1110-2-1200 (Plans and Specifications for Civil Works Projects). Cited in paragraph 5b(1).
  - e. Procedure 10, Procedure for Preparing Plans and Specifications, Planning, Engineering, and Construction Product Development Policy and Procedure Manual.

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\*This regulation supersedes NPPR-1110-2-6, 15 May 1996

4. EXPLANATION OF ABBREVIATIONS.

- a. BCOE - Biddability, Constructibility, Operability, and Environmental review process.
- b. TL - Technical Lead.
- c. PM - Project Manager.
- d. EC - Engineering and Construction.
- e. HDC - Hydroelectric Design Center.

5. PREAWARD BCOE.

a. Preaward BCOE reviews are accomplished by experienced personnel from the planning, design, estimating, procurement, legal, construction, environmental, real estate, project management, operations, value engineering, and contract administration fields. In-house, HDC, and A/E designs receive the same level of review. Reviewers with sufficient overall experience on similar projects are to provide quality input to the review. Requirements for reviewers with specific functional expertise are described below. Affected customers, local interests, and other agencies are provided plans and specifications for review and comment.

b. Responsibilities.

(1) Engineering and Construction Division (EC) is responsible for: ensuring the BCOE review is not a substitute for a complete independent technical design review (30%, 60% and/or 90%); for ensuring the accuracy and adequacy of the BCOE plans and specifications; coordinating the interdisciplinary review of design documents as required by ER 1110-2-1200; ensuring all projects receive a review; and incorporating all resolved BCOE review comments in the final solicitation.

(2) All Divisions and Offices listed in the following paragraph are responsible for ensuring participation in the BCOE review process. Each organization assures thorough review of a project; consolidating comments for concurrence within each office or division; and addressing all review comments. Each organization concentrates its review effort in its area of expertise.

c. Reviewers.

(1) Environmental Resource Branch, Planning, Programs and Project Management Division (CENWP-PM-E) provides reviewers to ensure compliance with all Fish and Wildlife

aspects under applicable Federal law and regulations and applicable environmental statutes conformance with authorized project features and master plans. Planning Branch, Planning, Programs and Project Management Division (CENWP-PM-PF) provides reviews for specifically legislated Federally funded and local cost-shared projects.

(2) EC Division reviewers include engineers responsible for preparation of the documents under review.

(3) Construction Branch (CENWP-EC-C) provides reviewers who are familiar with the project location and potential site-related problems. Reviewers are to have extensive knowledge of the construction marketplace, and experience in construction control, supervision, and contract administration.

(4) Operations Division (OP) provides reviewers from Operations Support Branch (CENWP-OP-S) and the affected project office who are familiar with the project location and any potential site problems and designs that would impact project operation and maintenance. Additionally, the requirement for any regulatory permits will be addressed by Operations Division.

(5) The Resident or Area Office provides reviewers who are familiar with construction procedures and requirements to distinguish potential problems during construction.

(6) Real Estate Division provides reviewers aware of current land acquisition status, type of acquisition or right-of-way required and local cooperation requirements.

(7) The District Counsel provides reviewers with knowledge of contract law and current judicial/administrative interpretations of pertinent contract requirements, and experience in providing legal advice and assistance on Civil Works program requirements.

(8) Contracting Division personnel provides guidance regarding establishing proper contracting methods and programs with pertinent contract clauses relative to each particular bid package.

d. BCOE Review. A minimum of one BCOE review is accomplished during each of the design stages described below.

(1) Feasibility or Detailed Design Report (DDR) Stage. BCOE review of DDRs that result in plans and specifications is conducted at the one hundred percent (100%) complete stage of the DDR prior to submittal to higher authority. Documentation of the review is prepared by the TL or PM and appropriately retained in EC central map files.

(2) Plans and Specification (P&S) Stage. BCOE review is conducted at the one hundred percent (100%) complete stage (ready for advertisement) prior to submitting for solicitation. Sets of P&S are distributed to all appropriate District elements. Sufficient time is allocated to all appropriate District elements and incorporated in the design schedule for the BCOE review process. Minimum time for review is as follows:

No. of Drawings	Work Days
1-20	3-10*
21-50	15
51-100	22
Over 100	30

\*For small projects, the review period may vary from a minimum of 3 work days to a maximum of 10 work days to allow appropriate adjustment for each project. Use of review conferences or meetings may also serve to reduce the BCOE review period for all P&S jobs.

Reviewer comments are submitted through the respective Office Chief to the TL. The TL assembles and resolves reviewer comments as required with the organization submitting the comments. Comment resolution may be accomplished either by meeting or in writing. All comments submitted in the appropriate Review Comments format are answered in writing and retained in the product/project file maintained by the TL.

e. Resolution of BCOE Comments.

(1) BCOE review comments in dispute are resolved between the appropriate design element in EC and a representative of the commenting Division(s) or Office(s). A copy of BCOE comment resolutions are sent to the respective offices.

(2) Informal resolution of review comments is encouraged. In the event agreement cannot be reached, the Chief of the commenting office resolves any remaining disputed comments with the Chief of EC.

(3) Comments may initiate a Value Engineering (VE) study. Where this method is appropriate, the VE study is coordinated between the appropriate EC Branch Chief and the VE Officer.

f. Job Approval Checklist Certification Sheet. Prior to contract solicitation, a job approval checklist certification sheet is initialed by the offices listed on the sheet to certify that all appropriate BCOE review comments have been incorporated in the solicitation as required by ER 415-1-11.

6. AMENDMENTS. All amendments which change scope or design receive a mini BCOE review to ensure that all appropriate District elements concur with the action. As a minimum, the Chiefs, CENWP-EC-C and CENWP-EC-D initial documentation before sending the proposed amendment to CENWP-EC-TS.

7. POST-AWARD.

a. EC Division.

(1) Engineering Consideration and Instructions (ECI) are prepared prior to award and become part of the project BCOE file maintained by the TL. The ECI is furnished to CENWP-EC-C and appropriate field office as early as possible and updated as necessary. Reference ER 1110-2-1150.

(2) Design personnel periodically make visits to the construction site, note items pertaining to the ECI, and prepare and submit a brief fact sheet to CENWP-EC-C. This fact sheet is also included in the BCOE file. All site visits are coordinated with Construction Service Section (CENWP-EC-CS) which arrange the inspections. Reference ER 1110-2-112.

(3) Upon completion of a contract, the Resident/Project Office submits a final report (Lessons Learned) to CENWP-EC-C. A copy of this report is furnished to the TL and CENWP-EC-TS as part of the BCOE file. This report includes suggestions for improving future designs and specifications changes, or for avoiding previously experienced problems of contract administration.

b. OP Division. Subsequent to construction completion, and after the first 6 months of operation, operating personnel submit to Chief, OP Division a report delineating those project operational and maintenance features that should be modified or updated on future projects. This report is then forwarded to CENWP-EC-D.

8. PRODUCT DEVELOPMENT/REVIEW TEAM ASSIGNMENTS. To further advance the BCOE review concept, personnel apart from the designers are assigned as a project development/review team members as workload and financial limitations permit. Assignments are as follows:

a. CENWP-EC-C field office personnel are to participate in the design process.

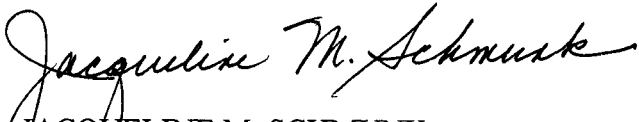
b. CENWP-OP-S and project technical staff are to participate in the design process.

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c. PM and EC planning and engineering personnel are to participate in the construction process.

d. CT contract specialists and technicians are to participate in the design process.

FOR THE COMMANDER:



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